ATTACHMENT - REMARKS

By this Amendment, independent claim 1 has been canceled and a new independent claim 15 substituted therefore in order to claim the invention with better clarity and to better define the invention over the prior art. Dependent claim 6 has been canceled as its subject matter is now part of new claim 15. In addition, other dependent claims have also been amended consistent with the recitations of new independent claim 15 and/or for clarity. It is submitted that the present application is in condition for allowance for the following reasons.

In outstanding final Action under the *Claim Rejections - 35 USC § 103* section, independent claim 1 was rejected under 35 USC § 103 as being obvious over the principal MacKenzi '385 in view of Hill. However, for the following reasons, it is submitted that new independent claim 15 is allowable over this combination of references.

Initially, it will be appreciated that new independent claim 1 generally recites the following explicit steps for producing a structure formed of an electrical functional material on a substrate:

a) activating a surface of the substrate with a corona treatment to produce a homogeneous surface tension on the substrate, where the homogeneous surface tension is higher relative to a normal surface tension of the substrate;
b) contacting a first region of the substrate directly with a contact structure which reduces the homogeneous surface tension at the first region to a lower value than that of an adjacent second region, where one of the first or second regions has a shape corresponding to that of the structure to be produced; and

c) applying an electrical functional material to one of the first or second regions of the substrate such that the functional material is deposited only in the one of the first or second regions, whereby the desired structure is formed from the functional material on the one of the first or second regions.

MacKenzie '385 discloses a method of repairing an electrical circuit, with a particular method described at column 23 as noted by the examiner. While this method is not particularly depicted, it is analogous to the method depicted in figures 1a-1f. Therefore, with reference to figures 1A-1C, generally the disclosed method includes the followings steps.

1) As in figure 1A: the problem is with a circuit portion [10] which has an electrical discontinuity [15] which breaks a single conductive line into two conductive line portions [16a, 16b].
2) As in figure 1B: as a first step, openings/holes [20] are formed in circuit portion [10] to expose at least one part of each conductive line [16a, 16b].
3) As in figure 1C: in accordance with the method at column 23, a low surface energy or poorly wetting thin film material [22] is deposited over the circuit region [10] to be repaired (possibly over the entire circuit or device being repaired).
4) Then, the (low surface energy) thin film material is patterned to selectively remove portions of the low surface energy thin film material from areas of the circuit corresponding to the region to be repaired. This is thus similar to what is depicted in figure 1B again, but there would be areas where the thin film material would remain (those areas where repair material is not desired, which areas are not shown in figure 1B). As a result of the selective removal of portions of the thin film material in

step 4), there remains areas of relatively high surface energy wetting surfaces [i.e., the areas of holes 20 where the thin film material has been removed] and areas where the (low surface energy) thin film material remains.

5) Finally, the nanoparticle- and/or silane-based thin film (repair) composition is subsequently deposited on, and adheres to, the high energy or wettable areas (and does not adhere to the adjacent thin film material areas on which it is deposited).

Hill discloses the printing of a substrate where there is differential adhesion within and without a deposited print pattern. In one disclosed embodiment, the film is first subjected to a corona treatment, in order to promote the subsequent adhesion thereto of an applied print pattern. The print pattern is then left to dry for a period of time such that the substrate surface energy is reduced in the non-printed regions of the film. A design layer is then applied to the substrate, forming a durable layer on the print pattern (only) and a non-durable layer on the substrate. The non-durable layer is subsequently removed from the underlying substrate.

From the above, it is apparent that while individual steps of independent claim 15 may be generally disclosed in the two cited references, no combination thereof absent a hindsight reconstruction would render the present invention as claimed in new independent claim 15 obvious. In particular, it will be noted that MacKenzie '385 concerns repair of a circuit region, where as a second repair step a thin film is applied over the prepared (with holes into the two portions of the broken conductive line 16a-b) circuit region. The repair material is ultimately applied to those selected areas where the thin film has been previously removed, but not to the circuit region per se (or substrate) as claimed in claim 15. Further, the remainder of the thin film without repair

material thereon is taught as being removed from the selected circuit region which does not occur and is unnecessary with the present invention.

While the Hill teaches application of a corona treatment to a wide area, this is taught as being employed so that the subsequent print pattern will adhere thereto. There is no disclosure in the MacKenzie '385 of a problem with adhesion of the print pattern in step 3) above, so it is questionable whether such a teaching in the Hill would need to be combined with the method of MacKenzie '385 as suggested by the examiner (other than as a hindsight reconstruction of the present invention). In addition, MacKenzie '385 already provides a satisfactory method for producing areas of high surface energy, so again it is questioned why one would complicate the disclosed method with the additional and complicated teachings of Hill other than as a hindsight reconstruction.

Finally, it will be appreciated that new method claim 15 particularly recites that the first region is contacted with a contact structure to change the surface energy at the contacted portions. This limitation was previously recited in dependent claim 6, now canceled. Dependent claim 6 was rejected as being obvious over MacKenzie '385 and Hill, and further in view of Fletcher. Fletcher discloses a paper sheet transport system in which a non-uniform electrostatic charge is applied over the paper sheet to be transported by use of a roller having an outer textured surface comprising a series of grooves (see figure 3A). However, such a textured roller or conveyor would be of no use in MacKenzie '385 , even as combined with Hill as suggested by the examiner since MacKenzie '385 is a method of repairing which has nothing to do with transporting of a sheet with an electrostatic charge as taught in Fletcher. In addition, the texture of the

so-called pattern supplied by Fletcher would be of no use in the repair method of MacKenzie '385 since the repair method of MacKenzie '385 is individually adapted to the unique repair to be made. Therefore, the contacting step with a structure as now particularly claimed is neither disclosed nor made obvious by either of MacKenzie '385 or Hill.

Therefore, since the combination of MacKenzie '385 and Hill are not fairly combined as suggested by the examiner, and in addition since neither reference nor Fletcher discloses a contact structure to reduce the surface tension as claimed, it is submitted that new independent claim 15 is allowable. For these same reasons, it is submitted claims 7-11 and 13-14 dependent from claim 1 are similarly allowable.

Respectfully submitted,

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